**THS730A.**

Features
Specs
Ordering Information

# Handheld Battery Operated Oscilloscope/DMM/Power Analyzers

## TekScope® THS730A * THS720A * THS720P

### FEATURES

#### THS730A/THS720A/THS720P

200 and 100 MHz Bandwidth
1 GS/s, 500 MS/s, 2 MS/s Sampling Rates per Channel
Two Channels and Dual Digitizers
External Trigger
3-3/4 Digit DMM with Datalogger
Roll Mode
Extra Bright Backlit Display
8 ns Glitch Capture
Independently Floating Isolated Scope and DMM Channels for Safety
Advanced Trigger - Delay, Pulse and Video (Line Count and Field Select), PWM Motor Drive (THS720P)
NiCd Battery and AC Adapter
21 Automatic Measurements
RS-232 Programmability/Communications
Deluxe Soft Carrying Case

#### THS720P Only

Measures Harmonics up to 31st (Fundamental from 30 Hz to 450 Hz)
Automatic Power Measurement with Statistics
Independently Floating Isolated Scope and DMM Channels for Safety
Full Floating Measurement Capability up to 600 $V_{RMS}$
1 kV High-voltage Probes
100 MHz Bandwidth with 500 MS/s Sampling Rate per Channel
Two Channels and Dual Digitizers
External Trigger
3-3/4 Digit DMM with Datalogger
Roll Mode

Extra Bright Backlit Display
8 ns Glitch Capture
Advanced Trigger - Delay, Pulse, Video (Line Count and Field Select)
NiCd Battery and AC Adapter
21 Automatic Measurements
RS-232 Programmability/Communication
Deluxe Soft Carrying Case

## APPLICATIONS

### THS730A/THS720A/THS720P

Field or Bench Electronic Troubleshooting (THS720P)
Floating (Nongrounded) System Measurements
Industrial Electronic Equipment Troubleshooting (THS720P)
Power Quality Surveys (THS720P)

### THS700 Series

### Handheld Battery Operated Oscilloscope

The TekScope THS700 Series Scope/DMM combines a full-featured real-time oscilloscope with a True RMS digital multimeter in rugged, battery-operated instruments. Scope and meter modes can operate simultaneously and independently on the same or separate signals. The high-resolution, backlit display and pop-up menus make it easy for users to take full advantage of the instrument's many features. These include cursors, video trigger, voltage and resistance measurements and storage of waveforms, data and instrument setups. In addition, they offer the most comprehensive triggering capabilities - external trigger and extensive triggering including delay, pulse width and video.

The THS700A Series is ideal for electronic applications - at the bench or at the site.

The THS700A Series shares measurement features with the THS720P Scope/DMM which includes features to address the needs of electric/power electronics measurements.

**THS720P.**

## The Only Safe Measurement Solution for Power Electronics

**The THS720P TekScope IsolatedChannel™ Scope/DMM is ideal for electric/power electronics applications. It combines a full-featured 100 MHz bandwidth and 500 MS/s sample rate Digital Real-Time™ oscilloscope with a True RMS digital multimeter in a rugged, battery-operated instrument. Scope and meter modes can operate simultaneously and independently on the same or separate signals. The high-resolution, backlit display and pop-up menus make it easy for users to take full advantage of the instrument's many features. These include cursors, video trigger, voltage and resistance measurements and storage of waveforms, data and instrument setups.**

**The THS720P includes features specifically for electric/power electronics measurements which allow testing and verifying correct operation of motors, checking transformer efficiency, verifying power-supply performance, and measuring the effect of neutral current. These features include harmonic analysis, power measurements and statistics and PWM motor drive triggering. It also contains the powerful features of a modern oscilloscope that enable troubleshooting and verification of complicated electronic control**

**circuits controlling the high-voltage power-electronics circuitry.**

**The THS720P shares measurement features with the THS730A, THS720A Scope/DMMs, which are ideal for electronic applications.**

Top of Page

Features

## CHARACTERISTICS

### Oscilloscope Functions

| | THS730A | THS720A | THS720P |
|---|---|---|---|
| Bandwidth | 200 MHz | 100 MHz | 100 MHz |
| Sample Rate (Each Channel) | 1 GS/s | 500 MS/s | 500 MS/s |
| Time/Division Range | 2 ns to 50 s/div | 5 ns to 50s/div | 5 ns to 50s/div |
| Power Measurements | N | N | Y |

### Oscilloscope Functions

**Channels -** Two.

**Sensitivity -** 5 mV to 50 V/div (to 500 V/div with 10X probe).

**Position Range -** ±10 div.

**DC Gain Accuracy -** ±2%.

**Vertical Resolution -** 8-Bits.

**Record Length -** 2500 points.

**Time/Division Range (THS720P only) -** 5 ns to 50 s/div.

**Horizontal Accuracy -** ±200 ppm.

**Roll Mode -** ≥ 0.5 s/div.

**Autorange -** User-selectable.

**Trigger Modes -** Auto, Normal.

**Trigger Types -** Edge, Pulse, Video, External, Motor (THS720P).

**Video Trigger Formats and Field Rates -** Odd field, even field and line.

**Motor Trigger (THS720P only) -** Triggers on 3- and 5-level pulse-width modulated power signal.

**External Trigger Input -** 5 MHz TTL compatible.

**Harmonics (THS720P only) -** Up to 31st (30 Hz-450 Hz).

**Waveform Processing -** Add, Subtract, Multiply, Calculate Watts = V x I.

**Waveform Storage -** 10 waveforms.

**Acquisition Modes -** Sample, Envelope, Average, Peak Detect.

**Cursor Measurements -** delta Volts, delta Time, 1/deltaTime (Hz), Degree (phase).

**Cursor Types -** Horizontal Bars, Vertical Bars, Paired (volts @ time).

**Display System -** Interpolation: Sin(x)/x.
**Format:** YT and XY.
Mode: Vector, Dot, Vector Accumulate, Dot Accumulate.

## Automatic Measurements

| | |
|---|---|
| Period | Frequency |
| +Width | -Width |
| Rise time | Fall time |
| +Duty cycle | -Duty cycle |
| +Overshoot | -Overshoot |
| High | Max |
| Low | Min |
| Peak-to-Peak | Amplitude |
| Mean | RMS |
| Cycle mean | Cycle RMS |
| Burst width | |

## Power Measurements (THS720P Only) -

| | |
|---|---|
| W | True power |
| VA | Apparent power |
| VAR | Reactive power |
| V | Volts (RMS, Peak) |
| A | Amps (RMS, Peak) |
| THD-F | Total harmonic distortion as a percentage of the fundamental |
| THD-R | Total harmonic distortion of the RMS of the input signal |
| PF | Power factor |
| DPF | Displacement power factor |
| PHI | Phase difference between the voltage and current |

## DMM Specifications

**DC Voltage Ranges -** 400.0 mV to 880 V.

**DC Volts Accuracy -** ±(0.5% of reading + 5 counts).

**True RMS AC Voltage Ranges -** 400.0 mV to 640 V.

**Maximum Float Voltage -** 600 VRMS CAT II, each channel (probe dependent).

**Resolution -** 4000 count, 3-3/4 digits.

**AC Volts Accuracy -** ±(2% of reading + 5 counts).

**Resistance Ranges -** 400.0 Ohm to 40.00 megaohm.

**Resistance Accuracy -** ±(0.5% of reading + 2 counts); 40 megaohm: ±(2% of reading + 5 counts).

**Diode Test Range -** 0 to 2 V.

**Continuity Check -** Audible tone when < 50 Ohm.

**Modes -** Min, Max, Delta, Max-Min, Avg, Hold.

**Nonvolatile Storage -** 10 DMM screenshots.

**External Trigger Input -** 5 MHz TTL compatible.

**Vertical Zoom Capability -** 2X, 5X, 10X.

**dB Scale -** Selectable, referenced from 1 mV to 10 V.

**dBm Scale -** Selectable, referenced from 50 Ohm to 600 Ohm.

## General Specifications

**Setups -** 10 front-panel setups.

**Safety -** UL3111-1, CSA1010.1, EN61010-1, IEC61010.1.

**EMC -** Meets Directive 89/336/EEC.

**Power -** NiCd rechargeable battery pack with AC adapter (both included).

**Battery Life -** Approx. 2 hours from full charge.

**Display -** Backlit LCD.

**Display Resolution -** 320 x 240.

## Physical Characteristics

| **Dimensions** | **mm** | **in.** |
|---|---|---|
| Width | 177 | 6.95 |
| Height | 217 | 8.53 |
| Depth | 51 | 2 |
| **Weight** | **kg** | **lbs.** |
| Net | 1.45 | 3.2 |

Top of Page

Features

## ORDERING INFORMATION

### THS730A, THS720A

**Handheld Battery Operated Oscilloscopes/DMM.**
**Includes:** Two **P6117 10X Passive Probes, User Manual, Quick Reference Manual, Standard Meter Lead Set, NiCd Rechargeable Battery Pack, AC Power Adapter, Soft Carrying Case, Cable and Adapters for RS-232, NIST-traceable Certificate of Calibration.**

## THS720P

**Handheld Battery Operated Oscilloscope. Includes: Two P5102 10X High-voltage Passive Probes, User Manual, Quick Reference Manual, Standard Meter Lead Set, NiCd Rechargeable Battery Pack, AC Power Adapter, Soft Carrying Case, Cable and Adapters for RS-232, NIST-traceable Certificate of Calibration.**

## Language Options

**Opt. L1 - French user manual.**

**Opt. L2 - Italian user manual.**

**Opt. L3 - German user manual.**

**Opt. L4 - Spanish user manual.**

**Opt. L5 - Japanese user manual.**

**Opt. L6 - Portuguese user manual.**

**Opt. L7 - Simplified Chinese user manual.**

**Opt. L8 - Traditional Chinese user manual.**

**Opt. L9 - Korean user manual.**

## Power Adapter Options

**Opt. A1 - European power plug.**

**Opt. A2 - UK power plug.**

**Opt. A3 - Australian power plug.**

**Opt. A6 - Japanese power plug.**

## Recommended Accessories

**Also see Accessories.**

**P5102 - 10X 100 MHz Passive Probe for higher voltage application: 1000$V_{RMS}$ Tip-to-reference; 600 $V_{RMS}$ Reference-to-earth Ground (float).**

**A621, A622 - Current Probes for scope operation.**

**P6117 (replacement) - 10X Passive Probe.**

**Battery Charger - Order THS7CHG.**

**Rechargeable Battery (replacement) - Order THS7BAT.**

**Hard Carrying Case - Order THS7HCA.**

**Standard Meter Lead Set (replacement) - Order 012-1482-00.**

**Deluxe Meter Lead Set - Order ATLDX1.**

**Programming Manual - Order 070-9751-00.**

**Service Manual - Order 070-9752-00.**

**Soft Carrying Case (replacement) - Order 016-1399-01.**

## Software

**WSTRO - WaveStar™ software for Oscilloscopes, Windows 95/98/NT application for waveform capture, analysis, documentation and control from your PC.**

**WSTROU - Upgrade from WSTR31 to WSTRO.**

**WSTR31 - WaveStar software for Windows 3.1.**

**WSRR31U - Upgrade from DocuWave software to WSTR31.**

## Warranty

**Three years (excluding probes).**

Top of Page

Features

Specs

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Tektronix Measurement products are manufactured in ISO registered facilities.

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